

# **Mycoplasmas and their antibiotic resistance: The problems and prospects in controlling infections**

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## **Abstract**

© 2016 Park-media, Ltd. The present review discusses the problem of controlling mycoplasmas (class Mollicutes), the smallest of self-replicating prokaryotes, parasites of higher eukaryotes, and main contaminants of cell cultures and vaccines. Possible mechanisms for the rapid development of resistance to antimicrobial drugs in mycoplasmas have been analyzed. Omics technologies provide new opportunities for investigating the molecular basis of bacterial adaptation to stress factors and identifying resistomes, the total of all genes and their products contributing to antibiotic resistance in microbes. The data obtained using an integrated approach with post-genomics methods show that antibiotic resistance may be caused by more complex processes than has been believed heretofore. The development of antibiotic resistance in mycoplasmas is associated with essential changes in the genome, proteome, and secretome profiles, which involve many genes and proteins related to fundamental cellular processes and virulence.

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## **Keywords**

Antibiotic resistance mechanisms, Bacterial resistome, Mycoplasmas, Omics technologies